US Army Corps
of Engineers

SAN FRANCISCO DISTRICT

PUBLIC NOTICE

NUMBER: 29506S -- Santa Cruz Harbor – Dredge Disposal Demonstration
DATE: July 22, 2005
RESPONSE REQUIRED BY: August 22, 2005

Regulatory Branch
333 Market Street
San Francisco, CA 94105-2197 PERMIT MANAGER: Clyde Davis PHONE: (415) 977-8449; E-mail: clyde.r.davis@usace.army.mil

1. INTRODUCTION: The Santa Cruz Port District (Port District), 135 5th Avenue, Santa Cruz, California 95062, (through its Port Director, Mr. Brian Foss, 831-475-6161) has applied for a Department of the Army permit to perform a demonstration project to evaluate the environmental effects of placing fine grained maintenance dredge material from its North Harbor into the littoral zone disposal site adjacent to the harbor through the existing offshore pipeline. The Port District is permitted to dredge and discharge up to 350,000 cubic yards (cy) of clean entrance channel material, comprised of approximately 90 % sand, in this area each year. (Corps File No. 25179S)

In March of 2001 the Port District conducted a demonstration project using 3,000 cy of sediment containing 50% sand. An extensive monitoring program was conducted during the experimental discharge to ascertain if any dredged sediment could be detected on the beaches or near shore environments in the vicinity. The data collected during the 2001 monitoring program concluded that the beach and offshore sedimentary regime were not altered or impacted to any significant degree by deposition of the fines contained in the relatively small volume of dredged sediment discharged, or from any other nearby sediment sources such as the San Lorenzo River. The outcome of the 2001 monitoring program led to a similar fine grained dredging event in the winter of 2004/5. The Port District was permitted to release 7050 cy of mixed-grained sediments approximately 50 meters offshore at the harbor disposal site. Monitoring results in 2005 were similar to the results obtained in 2001. Silt and clay was not deposited on beaches between San Lorenzo River and Black Point, which were composed of 100 % sand throughout the 2005 monitoring program. This material was assimilated in the system with sit and clay transported to the offshore mud belt with no adverse effects having been noted at the beach or near shore.

The Port District now proposes to conduct another demonstration project using a volume of sediment closer to the quantity transported by Arena Gulch and deposited in the North Harbor each year. This material also will be predominantly sand having less than 50 % fines. An enhanced monitoring program this year will attempt to track the fine sediments from the harbor dredging as well as the natural sediment plume entering the ocean from the San Lorenzo River. Better understanding of the sediment processes in the Santa Cruz Bight will enable the Port District to conduct its operation in better harmony with the local environment.

The Harbor is located in the City and County of Santa Cruz, California (Figure 1). This permit application is being processed pursuant to the provisions of Section 404 of the Clean Water Act (33 U.S.C. Section 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 403).

2. **PROJECT DESCRIPTION:** As shown in the attached drawings, the applicant has proposed removing approximately 10,000 cy of sediment from approximately 3.5 acres of the North Harbor area (Figures 2, 3, and 4) and disposing it in the near-shore area just east of the harbor jetty. The material would be removed using either the applicants' 16 inch cutter head hydraulic dredge or their 8 inch

cutter head hydraulic dredge which would in turn be connected to the 16 inch unit for pumping via the existing 16 inch pipeline (Figures 5, 6, and 7) to the discharge point at the existing aquatic discharge site into the surf-zone at Twin Lakes Beach 300 feet east of the Santa Cruz Harbor jetty in a near-shore area (Figure 8). Existing depths in the area average approximately -6 feet Mean Lower Low Water (MLLW) in the fairways and -5 feet MLLW in the berths. The design depth in the North Harbor is from -8 feet MLLW in the berth areas to -10 feet MLLW in the fairways, plus a two-foot allowance for over depth dredging.

The purpose of this new demonstration is to determine if a larger quantity of clean harbor sediments having between 50 and 80 percent sand can be disposed into the near-shore area at Santa Cruz in a manner beneficial to the down-coast beaches and without harm to coastal resources.

The North Harbor sediment currently being tested for its physical, chemical and biological properties will be evaluated by an interagency group as to its suitability for unconfined aquatic disposal and for beach nourishment. Previous grain-size analysis of North Harbor sediments suggests that the overall composition will prove to be predominantly sand at about 65%, the remainder would be equal parts silt and clay.

The Port District's regular maintenance dredging permit issued by the Corps of Engineers contains special conditions for dredging. The applicant proposes the following project protocols, which apply only to the demonstration project:

a. Dredging of the North Harbor sediments will be no deeper than the design and over dredge depths allowed by the maintenance permit.

b. To protect endangered salmonids, dredging will be conducted in the month of October 2005.

c. Three or four dredge and disposal episodes will occur weekly.

d. Episodes will occur in the evening hours between 4:00 p.m. and 10:00 p.m. to avoid contact with swimmers and surfers, as much as is possible.

e. Approximately 500-900 cy of sediments will be dredged and disposed during each episode.

f. There will be inter-agency oversight of the episodes so that dredging can be terminated quickly if it is found that fine-grained material is residing in the near-shore area or significant adverse impacts are detected.

g. Other constraints will be incorporated into the project as directed by the appropriate regulatory agencies.

According to the applicant, the following will be benefits from the proposed project:

a. Loss of sand to recreational beaches is a nationwide problem. The proposed project will save approximately 6,000 cy of sand for beach replenishment (sediment that would be lost to the beach if disposal is upland or farther off shore).

b. Silt and clay fractions will be transported by natural processes to the ocean and will not settle near shore or in the North Harbor.

c. Dredging and disposal during October when endangered salmonids are not present will allow evening dredging when the beach and ocean are not in use for recreation.

d. The proposed project will advance the science of sediment transport and management. This could be beneficial on a regional, west coast or national level.

3. 2005 FALL MONITORING PROGRAM

The design of the 2005 dredge disposal-monitoring program builds and improves on the 2001 methodology. Data will be collected on local beaches and offshore in three phases as follows:

prior to dredging, to establish a baseline of existing conditions; while dredging is occurring, to monitor any potential immediate impacts the fine-grained sediments; and post-dredging to document the return to pre-existing conditions. The 2005 monitoring program data will be incorporated into the 2001 Geographic Information System (GIS) database, which will provide the capability to catalog, visualize, analyze, and compare this geospatial data over time.

New methods are proposed for 2004-2005 in addition to those employed in the 2001 dredge-monitoring program. They will provide an increased understanding of sediment transport, its fate and impacts in the Santa Cruz Bight.

The following points explain the scientific methodologies to be used in the monitoring program and the benefit that collecting these data sets will have in managing future water-quality and sediment management challenges.

Sediment sampling

Sediment sampling over time provides direct, quantitative evidence of grain-size changes that may occur. This data is also useful as "ground truth" or physical evidence of seafloor substrate when classifying seafloor imagery into habitats (described below). Sediment samples will be collected before, during and after the fine-grained dredging event.

Water-quality monitoring

Water-quality constituents including turbidity, temperature, pH, dissolved oxygen, and salinity will be recorded at each offshore sample. In addition, sediment plumes will be tracked as they occur during the monitoring period, including those that appear to be from the up coast San Lorenzo River. Harbor dredging plumes will be differentiated from river plumes by identifying water-quality constituents. For example, a plume that is of lower salinity would most likely be from a freshwater source such as the San Lorenzo River. This data will provide direct evidence of fine-grained sediment transport in the water column.

Observational Diving

A diver will observe the critical habitats identified in 2001 prior to, during, and after dredging. The diver will visually inspect the outfall location while discharge is taking place to observe sediment transport and the deposition of fine-grained sediment. This will help fine tune water-quality and habitat mapping efforts (Figure 4).

Current Meter

An acoustic doppler current profiler will be deployed on the seafloor close to the dredge outfall during the monitoring program. This instrument continuously logs current speed and direction vertically through the water column and can also collect wave height and period. This data set is essential to describe the magnitude and direction of transport in the littoral zone. In addition, this data will be useful in producing an accurate current/wave-driven sediment transport model proposed below.

Multibeam bathymetry/backscatter imagery and seafloor habitat identification analysis in GIS

Detailed bathymetry and textural backscatter imagery provide the necessary framework over which all other data sets can be synthesized, integrated and analyzed. The multibeam bathymetry surveys and seafloor characterizations produced in the 2001 monitoring program were the first to describe in detail the variety of habitats offshore in the Santa Cruz Bight (Watt & Greene, 2003; Watt, 2003). The GIS analysis and comparison of the seafloor characterizations clearly illustrated sedimentary shifts in sand-size material that are expected in a high-energy coastal system such as the Santa Cruz Bight. Multibeam bathymetry provides unparalleled detail for mapping seafloor habitat types and changing sedimentary conditions over time. A comparison of the proposed 2004-2005 data sets will be made with the 2001 results; changes which have occurred naturally over time in the Santa Cruz Bight will further validate the 2001 program and the natural sedimentary conditions in this region.

Preliminary wave-driven sediment transport modeling

Understanding sediment transport dynamics near the harbor under a variety of conditions is a critical component to managing dredging operations. The development of a site-specific sediment transport model will provide a powerful tool for managing the ongoing fine-grained dredging and disposal operations and help meet current and future coastal oceanographic goals.

The model will:

- Calculate numerical solutions for sediment transport direction, magnitude and fate of naturally occurring and dredged sediment of multiple grain-sizes
- Catalogue changes in sediment transport patterns due to changing season, extreme El Nino events, large summer south swells, periods of intense river sediment input into the near shore, and/or dredge disposal operations
- Incorporate multiple sediment sources into the model such as the up coast San Lorenzo River
- Evaluate the effects of alternative offshore pipeline placement(s)
- Analyze past wave climates that have caused sedimentation or created other adverse impacts
- Incorporate modeling results into the GIS database produced during the 2001 dredging demonstration project.

The dredge monitoring program described above is designed to accurately and quantitatively determine the direction and magnitude of sediment transport and identify where sediment may have eroded or deposited in the harbor vicinity. The monitoring program will track and map sediment plumes either derived from the dredge outfall or from the San Lorenzo River. This data will add to and be compared with the GIS database developed in the 2001 monitoring program, expanding the current knowledge base of sediment transport in the Santa Cruz Bight over time which is essential to successfully manage harbor sediments.

4. COMPLIANCE WITH VARIOUS FEDERAL LAWS:

National Environmental Policy Act of 1969 (NEPA): The Corps will assess the environmental impacts of the proposed action in accordance with the requirements of the National Environmental Policy Act of 1969 (42 U.S.C. Section 4371 et. seq.), the Council on Environmental Quality's Regulations (40 CFR Parts 1500-1508), and the Corps' Regulations (33 CFR Part 230 and Part 325, Appendix B). Unless otherwise stated, the Environmental Assessment will describe only the impacts (direct, indirect, and cumulative) resulting from activities within the Corps' jurisdiction. The documents used in the preparation of the Environmental Assessment will be on file with the San Francisco Office of the U.S. Army Corps of Engineers, 333 Market Street, in San Francisco, California. The San Francisco Office can be contacted at 415-977-8436.

Endangered Species Act of 1973 (ESA): Section 7 of the Endangered Species Act requires formal consultation with the U.S. Fish and Wildlife Service (FWS) and/or the National Marine Fisheries Service (NMFS) if a Corps permitted project may adversely affect any Federally listed threatened or endangered species or its designated critical habitat. Consultation with the NMFS has been completed on endangered salmonids in the Santa Cruz Inner Harbor. It has been determined that with the implementation of specific avoidance and minimization measures proposed by the Port District, evening dredging during the month of October in the North Harbor may affect, but is not likely to adversely affect, threatened CCC ESU steelhead or adversely modify CCC ESU coho salmon critical habitat.

Magnuson-Stevens Fisheries Conservation and Management Act: NFMS and several interagency fisheries councils have designated specific water

bodies as Essential Fish Habitat (EFH) in accordance with the Magnuson-Stevens Fisheries Conservation and Management Act. Coordination with NMFS in regard to EFH has determined there are no impacts.

Clean Water Act of 1972 (CWA):

a. Water Quality: Under Section 401 of the Clean Water Act (33 U.S.C. Section 1341), an applicant for a Corps permit must first obtain a State water quality certification before a Corps permit may be issued. The applicant received a Technically Conditioned Water Quality Certification in 2000 and in 2005, an Amendment for beach placement of Inner Harbor sediments.

Those parties concerned with any water quality issue that may be associated with this project should write to the Executive Officer, California Regional Water Quality Control Board, Central Coast Region, 895 Aerovista Place, Suite 101, San Luis Obispo, California 93401; by the close of the comment period of this Public Notice.

b. Alternatives: Evaluation of this activity's impact on the public interest will also include application of the guidelines promulgated by the Administrator of the Environmental Protection Agency under Section 404(b)(1) of the Clean Water Act (33 U.S.C. 1344(b)).

Evaluation of the proposed activity's impact includes application of the guidelines promulgated by the Administrator of the Environmental Protection Agency under Section 404(b)(1) of the Clean Water Act (33 U.S.C. Section 1344(b)). An evaluation has been made by this office under the guidelines and it has been determined that the proposed project is water dependent and will be instrumental in determining whether beach placement of North Harbor dredged material is the least environmentally damaging practicable alternative disposal site.

Coastal Zone Management Act of 1972 (CZMA): Section 307 of the Coastal Zone Management Act requires the applicant to certify that the proposed project is consistent with the State's Coastal Zone Management Program, if applicable. No Corps permit will be issued until the State has concurred with the applicant's certification. The proposed project is within the jurisdiction of the California Coastal Commission.

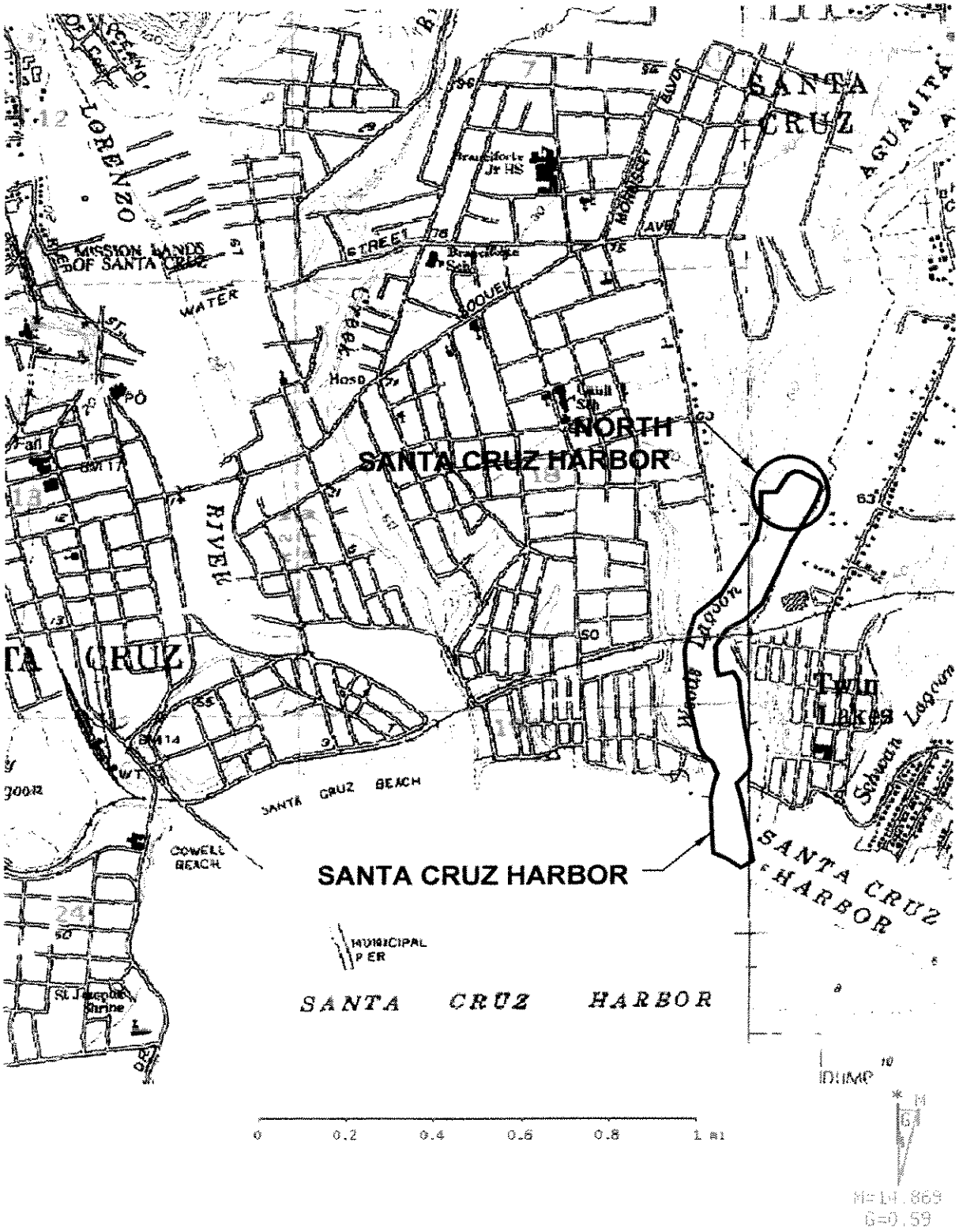
National Historic Preservation Act of 1966 (NHPA): Given that the North Harbor has been previously dredged to depths equal to those requested in the subject permit application, it is unlikely any historic properties are present at the proposed dredging site. However, if any archaeological resources were encountered during the dredging operations, the Corps of Engineers would consult with the State Historic Preservation Officer pursuant to Section 106 of the National Historic Preservation Act and take into account any project effects on such properties.

5. **PUBLIC INTEREST EVALUATION:** The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. All factors that may be relevant to the proposal must be considered including the cumulative effects thereof. Among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

6. **CONSIDERATION OF COMMENTS:** The Corps of Engineers is soliciting comments from the public, Federal, State and local agencies and officials, Indian Tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental

effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

7. **SUBMISSION OF COMMENTS:** Interested parties may submit in writing any comments concerning this activity. Comments should include the applicant's name, the number, and the date of this Notice and should be forwarded so as to reach this office within the comment period specified on page one of this Notice. Comments should be sent to: Mr. Clyde Davis, Regulatory Branch. It is Corps policy to forward any such comments that include objections to the applicant for resolution or rebuttal. Any person may also request, in writing, within the comment period of this Notice that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Additional details may be obtained by contacting the applicant whose address is indicated in the first paragraph of this Notice, or by contacting Mr. Clyde Davis of our office at telephone (415) 977-8449 or by e-mail at clyde.r.davis@usace.army.mil. Details on any changes of a minor nature that are made in the final permit action will be provided on request.



PREPARED BY: RED HILLS ENVIRONMENTAL, INC.

TITLE: SITE LOCATION MAP

PREPARED FOR: Santa Cruz Port District
135 5th Avenue
Santa Cruz, California

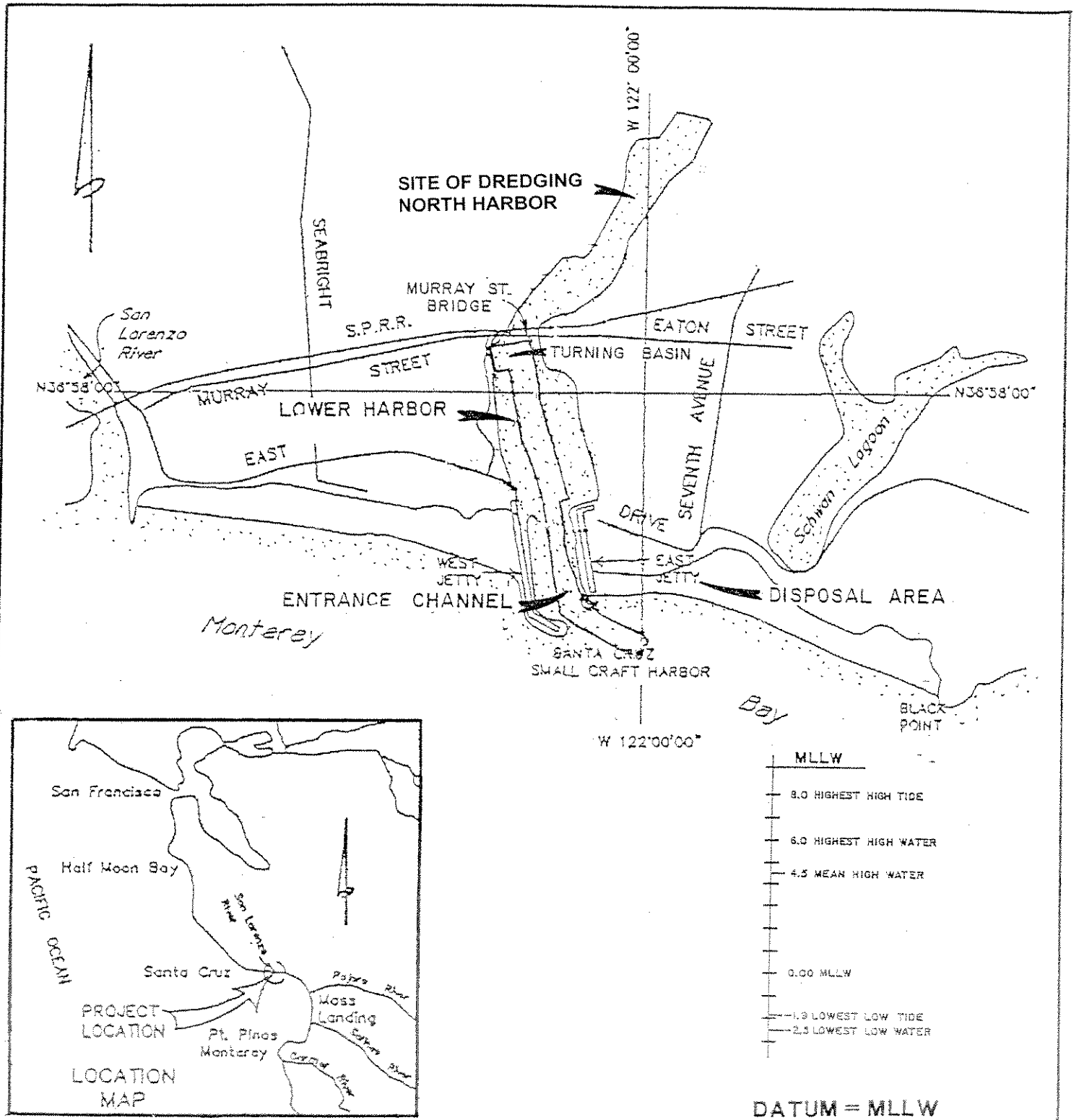
VERIFY BAR IS ONE-INCH LONG, IF NOT ADJUST SCALES ACCORDINGLY

SCALE: AS SHOWN

REF: Site Location DWG

PROJ. NO.: RH0502-1

FIG. 1



PURPOSE:
Demonstration II Dredging Project
October 2005
Dredging of 10,000 CY of sediment
from north harbor.

DATUM: MLLW

VICINITY MAP

0 1000 2000

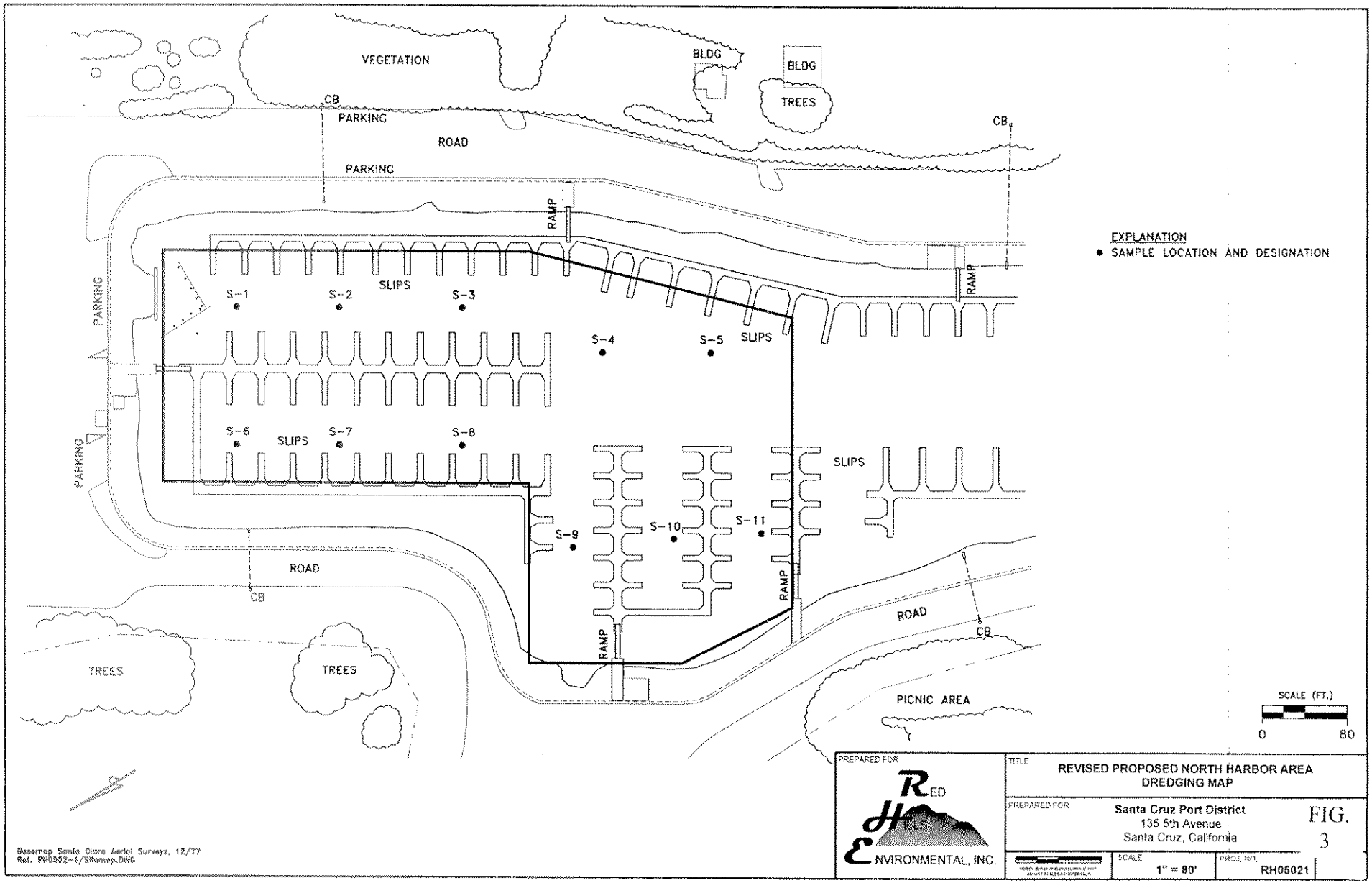
SANTA CRUZ PORT DISTRICT
135 5th AVENUE
SANTA CRUZ, CA. 95062

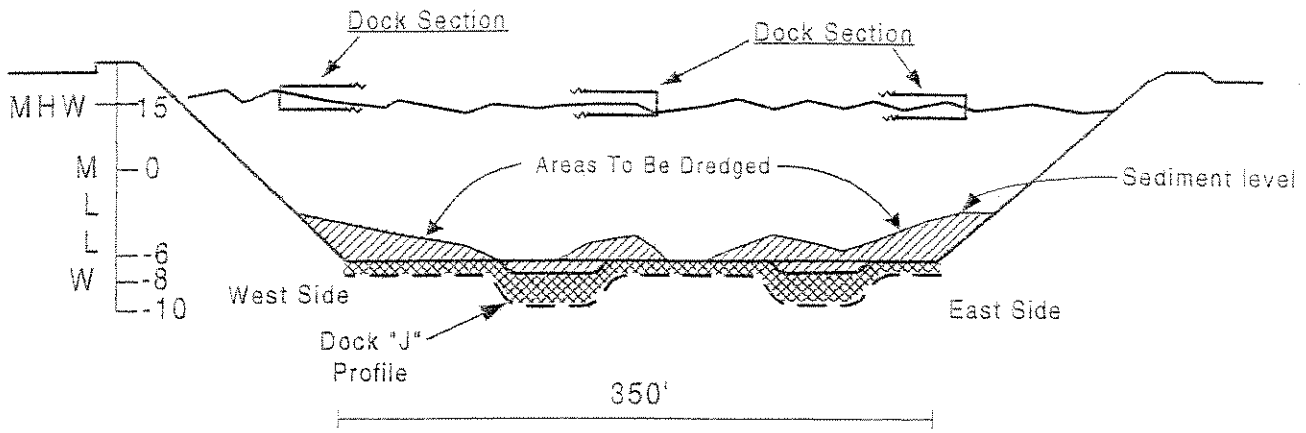
Date: March 1, 2005

FIG. 2

IN: SANTA CRUZ SMALL CRAFT HARBOR

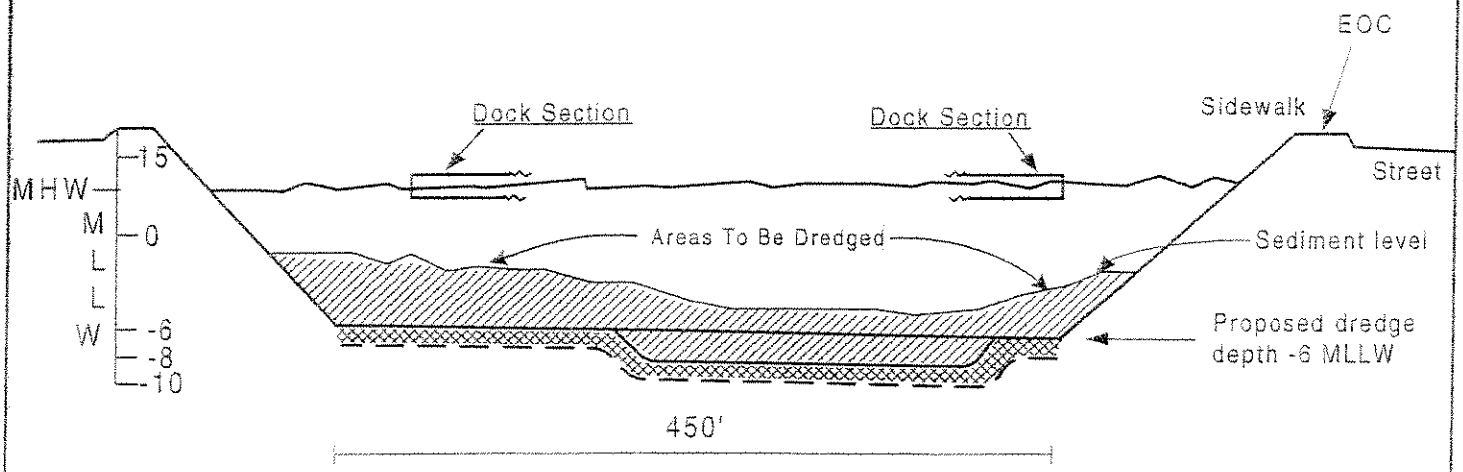
COUNTY OF: SANTA CRUZ
APPLICATION BY: SANTA CRUZ PORT DISTRICT


VEGETATION
BLDG
BLDG
TREES
CB
PARKING
ROAD
CB
PARKING
RAMP
PARKING
SLIPS
S-1
S-2
S-3
S-4
S-5
SLIPS
RAMP
PARKING
S-6
SLIPS
S-7
S-8
SLIPS
S-9
S-10
S-11
ROAD
CB
RAMP
RAMP
ROAD
CB
TREES
TREES
PICNIC AREA
EXPLANATION
● SAMPLE LOCATION AND DESIGNATION
SCALE (FT.)
0
80
PREPARED FOR
RED HILLS ENVIRONMENTAL, INC.
TITLE
REVISED PROPOSED NORTH HARBOR AREA DREDGING MAP
PREPARED FOR
Santa Cruz Port District
135 5th Avenue
Santa Cruz, California
FIG. 3
SCALE
1" = 80'
PROJ. NO.
RH05021
Basemap Santa Clara Aerial Surveys, 12/77
Ref. RH0502-1/SWemap.DWG



Channel Design Depth -8 MLLW
+2 FT. Over Depth

Berthing Area Design Depth -6 MLLW
+2 FT. Over Depth



"I" Dock to "X" Dock profile

Channel Design Depth -8 MLLW
+2 FT. Over Depth

Berthing Area Design Depth -6 MLLW
+2 FT. Over Depth

Profiles are representative only.
Actual depths to be surveyed at time
of Sampling and Analysis Plan submittal.

MHW= Mean High Water
MLLW= Mean Level At Low Water

SCALE: (Datum MLLW) 0 FEET 120 DRAWN BY: DATE:	DREDGING CROSS SECTIONS TYPICAL Santa Cruz Port District 135 5th Avenue Santa Cruz, California	FIG. 4 DATE: March 1, 2005

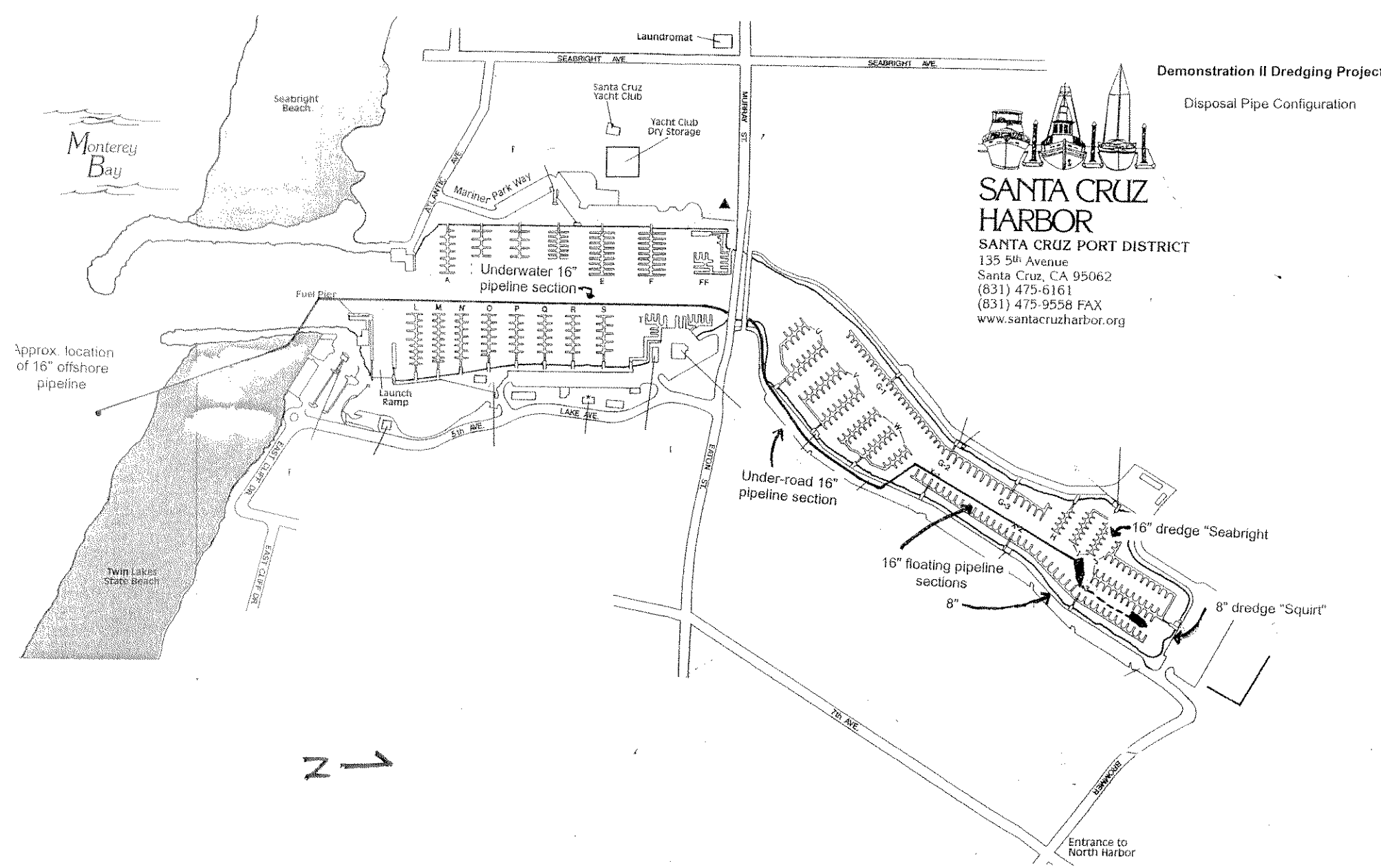
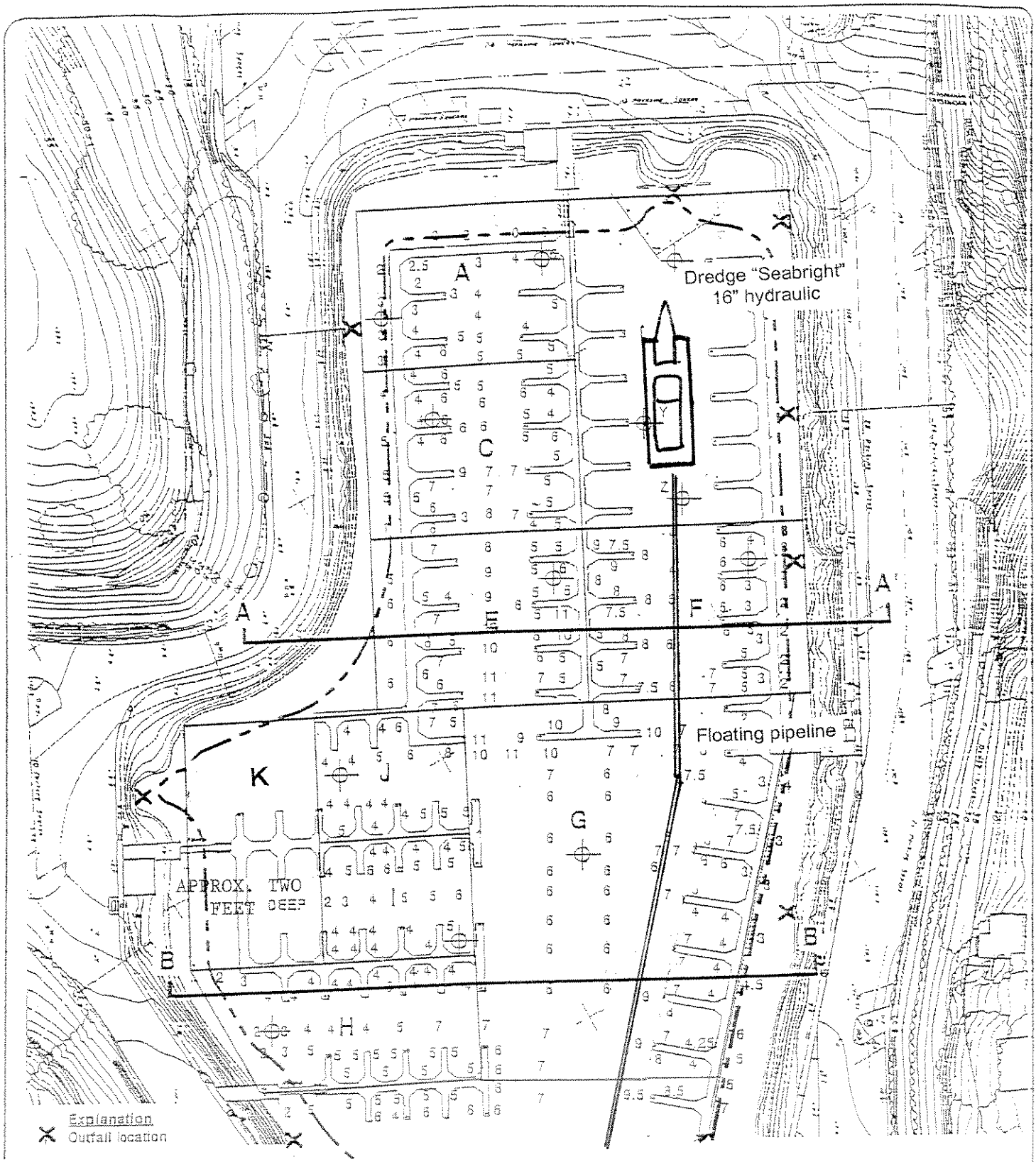

Demonstration II Dredging Project
Disposal Pipe Configuration
SANTA CRUZ HARBOR
SANTA CRUZ PORT DISTRICT
135 5th Avenue
Santa Cruz, CA 95062
(831) 475-6161
(831) 475-9558 FAX
www.santacruzharbor.org
Monterey Bay
Seabright Beach
Laundromat
SEABRIGHT AVE
Santa Cruz Yacht Club
Yacht Club Dry Storage
Mariner Park Way
ATLANTIC AVE
MURRAY ST
Underwater 16" pipeline section
Fuel Pier
Approx. location of 16" offshore pipeline
Launch Ramp
5th AVE
LAKE AVE
EAST CLIFF DR
EATON ST
Under-road 16" pipeline section
16" floating pipeline sections
8"
16" dredge "Seabright
8" dredge "Squirt"
Twin Lakes State Beach
7th AVE
BROADWAY
Entrance to North Harbor

FIG. 5



Depths are representative only.
Actual depths to be surveyed and
submitted with Sampling and Analysis Plan.

A A' Dredging cross-section

PURPOSE:

Demonstration II Dredging Project
October 2005
Dredging of 10,000 CY of sediment
from north harbor.

SCALE: (Datum MLLW)
0 FEET 30

DRAWN BY:

DATE:

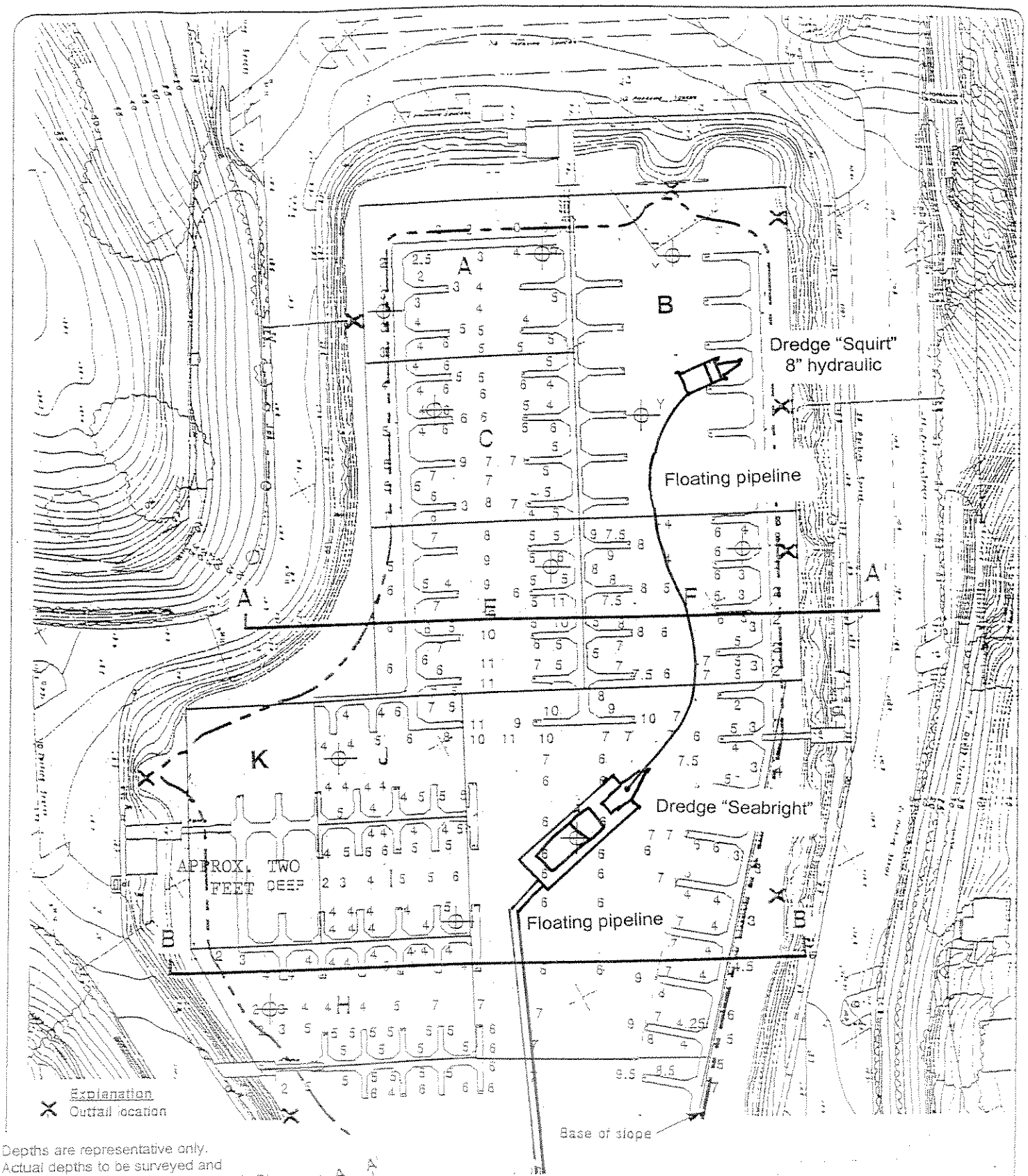
SANTA CRUZ NORTH HARBOR DREDGING MAP

Pipeline connects at "X" dock
to underground / underwater pipelines
and discharges to offshore disposal site

FIG. 6

DATE:
March 1, 2005

Configuration A – Dredge "Seabright"



Depths are representative only.
Actual depths to be surveyed and submitted with Sampling and Analysis Plan.

PURPOSE:

Demonstration II Dredging Project
October 2005
Dredging of 10,000 CY of sediment from north harbor.

SCALE: (Datum MLLW)
0 FEET 80

DRAWN BY:

DATE:

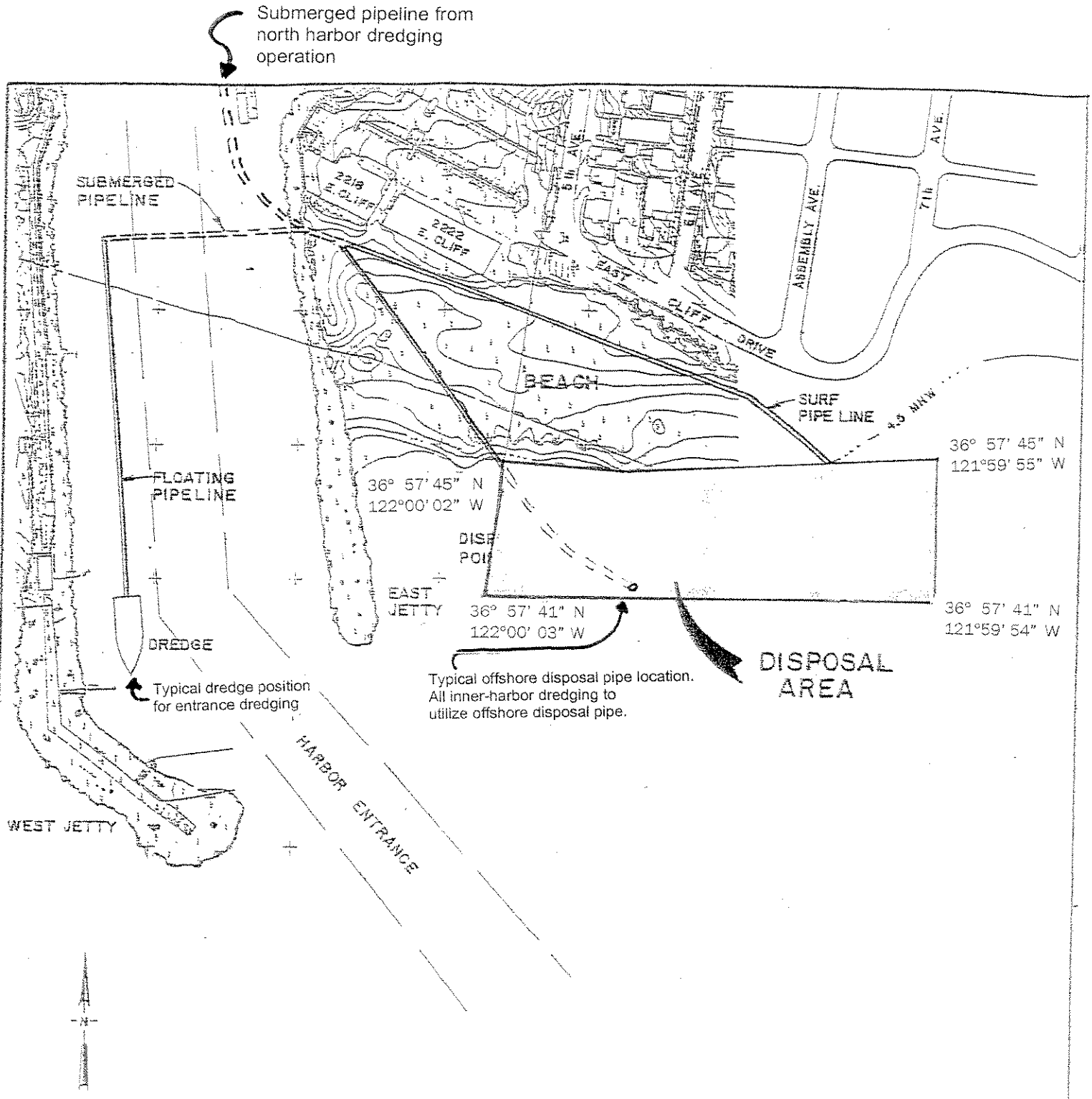
SANTA CRUZ NORTH HARBOR DREDGING MAP

Pipeline connects at "X" dock
to underground / underwater pipelines
and discharges to offshore disposal site

FIG. 7

DATE:
March 1, 2005

Configuration B – Dredge "Squirt" pumps to dredge "Seabright" which



NORTH HARBOR
DEMONSTRATION II
DREDGING PROJECT

DISPOSAL SITE

0 100 200 300 400
FEET

SANTA CRUZ PORT DISTRICT
135 5th AVENUE
SANTA CRUZ, CA. 95062

Date: March 1, 2005

FIG. 8

SANTA CRUZ SMALL CRAFT HARBOR
AT: ENTRANCE CHANNEL
COUNTY OF: SANTA CRUZ
APPLICATION BY: SANTA CRUZ PORT DISTRICT